Remarks

Claims 1, 5, 16, 20, 31 and 34 have been amended.

The Examiner has rejected applicants' claims 1, 5, 8-12, 16, 18, 20, 23-27 and 31-34 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner has argued that page 20, line 10 through page 21, line 7 of the applicants' specification does not show the exact concept of the new amended limitations of the claim and has requested applicants to further explain or point out where exactly in the specification the first and second calculations of image similarity as claimed wherein the weight values are obtained based on a size of the designated arbitral region included in the segmented region.

In order to avoid this rejection, applicants have amended applicants' claims as above set forth. In particular, amended claim 1 now recites that the setting step sets a weight value in units of segmented regions obtained by segmenting the search source image into a plurality of segmented regions, based on a ratio of a size of the designated arbitral region included in the segmented region to a size of the segmented region, wherein the weight value increases as the ratio increases. This feature of the claim is discussed on page 20, line 10 through page 21, line 7, and shown in FIGS. 7 and 11 (particularly, steps S721 and S722 of FIG. 11) of applicants' specification.

Amended claim 1 now also recites a calculation step of dividing the search source image and each of the plurality of images stored in the storage means into the plurality of segmented regions, performing similarity calculation in units of the segmented regions, using the weight value set in the setting step, to obtain weighted similarity for each of the segmented regions between the designated search source image and each of the plurality of images stored

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in the storage means, and calculating image similarity between the search source image and each of the plurality of images on the basis of the calculated weighted similarity for each of the segmented regions. This feature is supported by the above-mentioned portions of applicants' specification supporting the setting step as well as the description at page 14, line 6 through page 16, line 6 and page 20, lines 2-9 of applicants' specification and, in particular, Step S76 of FIG. 7.

Likewise applicants believe that the above portions of applicants' disclosure support the integrating recitation of the calculating feature of applicants' amended claims 5 and 20.

It is, therefore, submitted that applicants' amended independent claim 1 and applicants' amended independent claims 16, 31 and 34, which have been amended similarly to amended claim 1, as well as their respective dependent claims, are supported by an enabling disclosure. Such claims thus satisfy the provisions of 35 USC § 112, first paragraph.

The Examiner has also rejected applicants' claims 1, 5, 8-12, 16, 18, 20, 23-27 and 31-34 under 35 U.S.C. §103(a) as being unpatentable over the Lipson, et al. (US 6,463,426) patent in view of the Sato, et al. (US 6,246,804) patent. With respect to applicants' claims, as amended, this rejection is respectfully traversed.

Applicants' independent claims 1, 16, 31 and 34 have been amended to better define applicants' invention. More particularly, applicants' independent claim 1 recites an image search method of searching for a desired image from a plurality of images stored in storage means in which a designation step designates an arbitral region in a search source image and a a setting step sets a weight value in units of segmented regions obtained by segmenting the search source image into a plurality of segmented regions, based on a ratio of a size of the

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designated arbitral region included in the segmented region to a size of said segmented region, wherein the weight value increases as the ratio increases.

Amended claim 1 further recites a calculation step of dividing the search source image and each of the plurality of images stored in the storage means into the plurality of segmented regions, performing a similarity calculation in units of the segmented regions, using the weight value set in the setting step, to obtain weighted similarity for each of the segmented regions between the designated search source image and each of the plurality of images stored in the storage means, and calculating image similarity between the search source image and each of the plurality of images on the basis of the calculated weighted similarity for each of the segmented regions, and an acquisition step of acquiring an image as a search result from the plurality of images on the basis of the image similarity calculated in the calculation step. Independent claims 16, 31 and 34 have been similarly amended.

Such a construction is not taught or suggested by the cited art of record. More particularly, the Examiner has acknowledged that the Lipson, et al. patent fails to teach or suggest the use of size in segmenting regions of an image for determining image similarity. The Examiner then cites the Sato, et al. patent and states that "Sato teaches a method of retrieving and searching images (abstract) applying a method of setting step of setting weight value (size information of arbitral region) (FIG. 4, element 302 and FIG. 47, S211) in units of segmented regions obtained by segmenting the image into a plurality of segmented regions, based on a size of the designated arbitral region included in the segmented region."

The Examiner also states that "Sato also teaches the method wherein the setting step, the weight value of each segmented region is set based on a ratio of the designated arbitral region to the segmented region (FIG. 47, element S213 and S214 and FIG. 52, S236). The

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Examiner then argues that applying the teachings of Sato, et al. to the system of the Lipson, et al. patent will result in applicants' claimed invention.

Applicants have reviewed the cited portions of the Sato, et al. patent referred to by the Examiner. In particular, FIG. 47 shows the steps used for determining the block size for a designated image. In the Step S211 of the procedure, "a maximum height h, a maximum width w, and an area (the number of pixels in the designated image) region are calculated for the designated image 100." Col. 26, lines 5-7. In the step S212, an initial value s for the block size is set based on the closest block whose height and width is equal to or larger than the h and w calculated in the step S211. In the step S213, it is determined whether the value of s x s of the block is larger than the area of the designated region multiplied by a predetermined constant T. If the determination is YES, the flow proceeds to the step S214 and the value of s is multiplied by ½ and then the flow returns to the step S213. If the determination is NO, the value s is determined as the block size for the next match. Col. 26, lines 7-16. The calculated block size and a calculated feature amount are then used by a search unit to search an index table to output candidate images and their corresponding regions as retrieval images. Col. 25, lines 1-6.

The Sato, et al patent also discloses at Col. 8, lines 17-25, that a size information discrimination section 302 compares the vertical and horizontal dimensions of a designated image 100 and those of the regions of image data, and, if the vertical or horizontal dimension of one of the divided regions shown in FIG. 6 is larger than the vertical or horizontal dimension of the designated image 100, determines a non-coincidence therebetween (i.e., the region does not become a portion of the designated image), and excludes the corresponding region from those to be matched.

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Finally, the Sato, et al. patent in FIG. 52 discloses a procedure in which the total of the areas having a designated color is compared to the area of a designated image and if less than a certain amount, a stored image is eliminated from the search. Col. 28, line 25, through Col. 29, line 10.

It is evident from the above, that the aforesaid portions of the Sato, et al. patent do not teach or suggest determining a weighted value of a segmented region based on size, let alone on the ratio of the sizes of a designated arbitral area included in a segmented region and the segmented region. In particular, in the procedure of FIG. 47, there is no ratio of sizes made and the calculation is to determine block size, not a weight value based on sizes. Similarly, in the FIG. 52 procedure, the ratio taken is used to eliminate an image from a search and not to generate a weight value based on size. Moreover, in neither procedure is there taken a ratio of a size of a designated arbitral region included in a segmented region and a size of the segmented region.

Applicants' amended independent claims 1, 16, 31, and 34, and their respective dependent claims, in reciting a setting step which sets a weight value in units of segmented regions obtained by segmenting the search source image into a plurality of segmented regions, based on a ratio of a size of the designated arbitral region included in the segmented region to a size of said segmented region, wherein the weight value increases as the ratio increases, in combination with the other features of the claims, patentably distinguish over the combination of the Lipson, et al and the Sato, et al. patents.

In view of the above, it is submitted that applicants' claims, as amended, patentably distinguish over the cited art of record. Accordingly, reconsideration of the claims is respectfully requested.

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